

Patent Claims

1. A folded honeycomb, comprising a large number of corrugated core strips which lie beside one another and in one plane and each consist of a corrugated or trapezoidal core with at least one cover layer, the cover layers of the corrugated core strips being arranged parallel to one another and transversely with respect to the plane, and the longitudinal direction of the flutes of the corrugated core extending, for each corrugated core strip, transversely with respect to the latter, and the corrugated core strips being connected to one another, characterized in that for at least each second corrugated core strip, a cover layer of one corrugated core strip is formed in one piece with the cover layer of one of the adjacent corrugated core strips and is connected to the latter via a fold of  $180^\circ$ , and the connections between adjacent corrugated core strips are arranged alternately on one side and the other side of the folded honeycomb.
2. The folded honeycomb according to claim 1, characterized in that the ratio between the width and the height of each corrugated core strip lies in the range from 0.5 to 2.
3. The folded honeycomb according to claim 1 or 2, characterized in that the ratio between the weights per unit area of the corrugated core material and the cover layer material of each corrugated core strip lies in the range from 1 to 2.
4. The folded honeycomb according to one of claims 1 to 3, characterized in that the cover layer of the corrugated or trapezoidal core of at least each

second corrugated strip is wholly or partly connected over the entire area to the cover layer of the corrugated or trapezoidal core of at least one adjacent corrugated core strip.

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5. The folded honeycomb according to one of the preceding claims, characterized in that each corrugated core strip consists of two cover layers and a corrugated or trapezoidal core arranged between them, and ~~the~~ one cover layer of each corrugated core strip is formed in one piece with a cover layer of an adjacent corrugated core strip and is connected to the latter via a fold of 180°, and the other cover layer is formed in one piece with a cover layer of another adjacent corrugated core strip and is connected to the latter via a fold of 180°.

6. The folded honeycomb according to one of the preceding claims, further characterized in that a cover layer is arranged at least on one side of the large number of corrugated core strips lying beside one another.

7. A process for the continuous production of a folded honeycomb, comprising the following steps:

a) forming connected corrugated core strips consisting of a corrugated or a trapezoidal core with at least one cover layer, the corrugated core strips being connected to one another and the connections between adjacent corrugated core strips being arranged alternately on one side and the other side of the folded honeycomb and, for at least each second corrugated core strip, the cover layer of one corrugated core strip being connected to the cover layer of an adjacent corrugated core strip; and

- 5 b) rotating the connected corrugated core strips through about  $90^\circ$  in relation to one another, as a result of which the cover layers of the corrugated core strips are folded through about  $180^\circ$  at the connecting lines.
- 10 8. The process according to claim 7, characterized in that the ratio between the width and the height of each corrugated core strip lies in the range from 0.5 to 2. *A*
- 15 9. The process according to claim 7 or 8, characterized in that the ratio between the weights per unit area of the corrugated core material and the cover layer material of each corrugated core strip lies in the range from 1 to 2.
- 20 10. The process according to one of claims 7 to 9, characterized in that the touching surfaces are firmly connected to one another, either with adhesive which is applied previously or in another way.
- 25 11. The process according to one of claims 7 to 10, characterized in that at least one cover sheet is laminated onto the folded honeycomb.
- 30 12. The process according to one of claims 7 to 11, characterized in that the step of forming the connected corrugated core strips includes cutting completely through the corrugated core web to form individual corrugated core strips.
- 35 13. The process according to one of claims 7 to 11, characterized in that the step of forming the connected corrugated core strips includes the

longitudinal slitting of a corrugated core web to form connected corrugated core strips.

5 14. A system for producing a folded honeycomb, comprising:

10 a) a first apparatus for forming connected corrugated core strips lying in a plane consisting of a corrugated or a trapezoidal core with at least one cover layer, the corrugated core strips being connected to one another and the connections between adjacent corrugated core strips being arranged alternately on one side and the other side of the plane, in at least each second corrugated core strip a cover layer of one corrugated core strip being connected to the cover layer of one of the adjacent corrugated core strips; and

20 b) a second apparatus for rotating the connected corrugated core strips through about  $90^\circ$  with respect to one another, as a result of which the cover layers are folded through about  $180^\circ$  at the connecting lines.

25 15. The apparatus according to claim 14, characterized in that the apparatus for forming the connected corrugated core strips includes an apparatus for cutting completely through a corrugated core web to form individual corrugated core strips.

30 16. The apparatus according to claim 14, characterized in that the apparatus for forming the connected corrugated core strips includes an apparatus for the longitudinal slitting of a corrugated core web to form connected corrugated core strips.

17. The apparatus according to one of claims 14 to 16, characterized in that the ratio between the width and the height of each corrugated core strip lies in the range from 0.5 to 2.
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18. The apparatus according to one of claims 14 to 17, characterized in that the ratio between the weights per unit area of the corrugated core material and the cover layer material of each
- 10 corrugated core strip lies in the range from 1 to 2.
19. The apparatus according to one of claims 16 to 18, characterized in that the apparatus for the longitudinal slitting of the corrugated core web has a plurality of rotating or stationary knives.
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20. The apparatus according to one of claims 14 to 19, characterized in that the rotation apparatus has a longitudinal undulation and, as a result, leads the corrugated core strips out of the plane for some time or leads them in such a way that individual corrugated core strips or a plurality of corrugated core strips are rotated one after
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- 25 another.
21. The apparatus according to one of claims 14 to 20, characterized in that an apparatus for applying adhesive to the cover layers of the corrugated
- 30 core strips is located upstream or in the region of the rotation of the corrugated core strips.
22. The apparatus according to one of claims 16 to 21, characterized in that the apparatus for cutting and for rotation in each case has adjusting devices for the variable setting of the distance of the knives and guide elements in the width
- 35 direction.

23. A plurality of corrugated core strips which lie one beside the other, are connected to each other and lie in one plane and which each consist of a corrugated or a trapezoidal core with at least one cover layer, the cover layers of the corrugated core strips being parallel to one another and the longitudinal direction of the flutes of the corrugated core, for each corrugated core strip extending transversely with respect to the latter, and the corrugated core strips being connected to one another, characterized in that for at least each second corrugated core strip, the cover layer of one corrugated core strip is formed in one piece with the cover layer of one of the adjacent corrugated core strips and can be connected to the latter by being folded through 180° to form a folded honeycomb, so that the connections between adjacent corrugated core strips are arranged alternately on one side and the other side of the folded honeycomb.
24. The plurality according to claim 23, characterized in that the ratio between the width and the height of each corrugated core strip lies in the range from 0.5 to 2.

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